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10/600,190	06/20/2003	Keith J. Brodie	SIRF.P027.US.C3	8790

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EXAMINER	
MANCHO, RONNIE M	
ART UNIT	**PAPER NUMBER**
3663	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/600,190	BRODIE, KEITH J.	
	Examiner	Art Unit	
	Ronnie Mancho	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7, 8,10-16, 18, 19* is/are rejected.

7)☒ Claim(s) *1,4-7,9,12,13 and 15-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6-20-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

In the specification page, the applicant is advised to update the information on the priority documents cited since parent case 10156492 is now US Pat. 6611757; and case 09903934 is now US Pat. 6427121; and case 09560797 is now US Pat. 6301545.

Appropriate correction is required.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --Global Positioning System Tag And Method -- to reflect to the method claims in the application.

Claim Objections

3. Claims 1, 7, 9, 10, 14, 15, 16 are objected to because of the following informalities:

In claim 1, line 6, the examiner suggests that "the pseudorandom noise (PRN) code number" be written as -- a pseudorandom noise (PRN) code number -- for clarity.

The above objection also applies to claims 10 & 14.

In claim 7, line 2, the applicant is advised to change "two receivers" to ---two of the filters--- for clarity and as disclosed in the specification page 8, lines 26-30. In line 3, the examiner suggests that "one adapted" be written as --the third one-- for clarity and as disclosed in the specification page 8, lines 26-30

In claim 9, line 2, the examiner suggests that "in ships" be written as -- in chips -- for clarity.

In claims 15, 16, the examiner believes that the applicant meant to write the claims to depend from independent claim 14. Therefore, in order to avoid a rejection on claims 15 and 16 for the duplication of claims 2 and 3, the applicant is advised to amend claim 15 and claim 16 to depend from claim 14. The examiner will now treat claims 15, 16 as requested above.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7, 12, 18, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, line 1, "the passive standby circuit" lacks antecedent basis.

In claim 12, line 5, "the approximate signal peak" lacks antecedent basis.

In claim 18, line 3, "the resonant frequency" lacks antecedent basis.

In claim 19, line 1, "the passive standby circuit" lacks antecedent basis. In line 3, "the noise" lacks antecedent basis. In line 4, "the band" lacks antecedent basis. In line 5, "the result" lacks antecedent basis.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1-3, 8, 10, 11, 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Krasner (5781156)

Regarding claim 1, Krasner discloses a communications system (fig. 1A) for determining the position of an object (20, mobile remote unit), said system comprising:

an interrogator (10, base or reference station) remote from the object 20 and adapted to: receive GPS signals from GPS satellites (see GPS antenna 12, fig. 1; col. 7, lines 57-60);

transmit pre-positioning data (i.e. positioning data e.g. Doppler shifts, pseudorange "col. 6, line 25", etc is pre-established or computed first by the interrogator i.e. "base station 10" and sent to the object 20 before an accurate position of the object 20 is computed using the pre-computed sent data. See data link 16, fig. 1A) for each of the received GPS signals including a pseudorandom noise (PRN) code number (see unique Gold code or C/A code for civilian applications, col. 2, lines 2-14, i.e. each satellite is given a number or unique Gold code for identification of that particular satellite; col. 11, lines 17-21; col. 5, lines 66 to col. 6, lines 1-2), Doppler frequency offset (col. 11, lines 60-66) and code phase offset (col. 11, lines 28-35; col. 5, lines 66 to col. 6, lines 1-2) and a tracking signal (see satellite identity, col. 6, lines 21-26; col.

11, lines 61-66) including reference time (epoch, col. 5, lines 66 to col. 6, lines 1-2) and frequency information (col. 11, lines 17-20; col. 5, lines 66 to col. 6, lines 1-10); and

determine the pseudorange (col. 11, lines 28-35) associated with at least one of the GPS signals using a subsequently received correlation snapshot (a snap shot is the collection of data such as PRN or PN frames in a given period of time; col. 11, lines 28-35; col. 12, lines 10-12); and

a transponder (i.e. all the circuit blocks disposed on mobile unit 20) positioned on the object (mobile unit 20) and adapted to:

receive (i.e. at 26, 22) the pre-positioning data and tracking signal (see data link 16, fig. 1A; col. 11, lines 61 thru col. 12);

collect RF samples of at least one of the GPS signals associated with one of the PRN code numbers (col. 11, lines 61 thru col. 12);

correlate (col. 12, lines 61-67) the RF samples of the GPS signal against code replicas of the GPS signal based on the Doppler frequency offset, code phase offset and reference time and frequency information for that GPS signal to produce the correlation snapshot (col. 1, lines 66 thru col. 2, lines 1+; col. 12, lines 61+); and

transmit (fig. 3, col. 12, lines 49 thru col. 13, lines 1+) the correlation snapshot to the interrogator (10, base or reference station).

Regarding claim 2, Krasner discloses the system of claim 1 wherein the transponder (all the circuit blocks disposed on mobile unit 20) comprises a two-bit (e.g. 1 or 0; col. 10, lines 37-40; fig. 2A) sampler for collecting the RF samples.

Regarding claim 3, Krasner discloses the system of claim 1 wherein the interrogator 10 is further adapted to transmit a wake-up signal (command to initialize, col. 11, lines 61-65; initialization data, col. 6, lines 16-30) prior to transmitting the pre-positioning data and the tracking signal, and the transponder (i.e. all the circuit blocks disposed on mobile unit 20) comprises:

processing circuitry (fig. 1A); and

a power subsystem adapted to maintain the processing circuitry in a power-off mode prior to receipt of the wake-up signal (col. 5, lines 39-51).

Regarding claim 8, Krasner discloses the system of claim 1 wherein the code replicas (col. 12, lines 7-28; see repetitive signal; col. 1, lines 65 thru col. 2, lines 1-25) are generated by the transponder (i.e. all the circuit blocks disposed on mobile unit 20) at regular offsets (repetition period of 1023 chips, col. 2, lines 6) of some fraction of a C/A code chip.

Regarding claim 10, Krasner discloses a method (fig. 1A) for determining the position of an object (20, mobile remote unit) comprising:

receiving at a location (10, base or reference station) remote from the object 20 GPS signals from GPS satellites (see GPS antenna 12, fig. 1A; col. 7, lines 57-60);

transmitting, at a location (10, base or reference station) remote from the object 20, pre-positioning data (see data link 16, fig. 1) for each of the received GPS signals including the pseudorandom noise (PRN) code number, Doppler frequency offset and code phase offset and a tracking signal including reference time and frequency information (col. 11, lines 17-20; col. 5, lines 66 to col. 6, lines 1-10);

receiving, at the object 20, the pre-positioning data and tracking signal (see data link 16, fig. 1A);

collecting, at the object 20, RF samples of at least one of the GPS signals associated with one of the PRN code numbers (col. 11, lines 61 thru col. 12);

correlating, at the object 20 (col. 12, lines 61+), the RF samples of the GPS signal against code replicas of the GPS signal based on the Doppler frequency offset, code phase offset and reference time and frequency information for that GPS signal to produce the correlation snapshot (col. 1, lines 66 thru col. 2, lines 1+; col. 12, lines 61+);

transmitting, at the object 20, (fig. 3, col. 12, lines 49 thru col. 13, lines 1+) the correlation snapshot;

receiving, at the location (10, base or ground station) remote from the object 20, the correlation snapshot; and

determining, at the location (10, base or reference station) remote from the object 20, the pseudorange (col. 11, lines 28-35) associated with at least one of the GPS signals using the correlation snapshot (col. 12, lines 22+, lines 59+).

Regarding claim 11, Krasner (fig. 4) discloses the system of claim 1 wherein the transponder (i.e. all the circuit blocks disposed on mobile unit 20) comprises a two-bit sampler (e.g. 1 or 0; col. 10, lines 37-40; fig. 2A) for collecting the RF samples.

Regarding claim 14, Krasner (fig. 1A) discloses a transponder (i.e. all the circuit blocks disposed on mobile unit 20) adapted to be associated with an object and for use in providing data to an interrogator 10 remote from the object, the data for use in determining the location of the object , said transponder (i.e. all the circuit blocks disposed on mobile unit 20) comprising:

a transceiver 24 adapted to receive signals from the interrogator 10 (fig. 1A), the signals including prepositioning data (i.e. positioning data e.g. Doppler shifts, pseudorange "col. 6, line 25", etc is pre-established or computed first by the interrogator i.e. "base station 10" and sent to the object 20 before an accurate position of the object 20 is computed using the pre-computed sent data. See data link 16, fig. 1A) for GPS signals received by the interrogator 10 including the pseudorandom noise (PRN) code number (see unique Gold code or C/A code for civilian applications, col. 2, lines 2-14; col. 11, lines 17-21; col. 5, lines 66 to col. 6, lines 1-2), Doppler frequency offset (col. 11, lines 60-66) and code phase offset (col. 11, lines 28-35; col. 5, lines 66 to col. 6, lines 1-2) and a tracking signal (see satellite identity, col. 6, lines 21-26; col. 11, lines 61-66) including reference time (epoch, col. 5, lines 66 to col. 6, lines 1-2) and frequency information (col. 11, lines 17-20; col. 5, lines 66 to col. 6, lines 1-10); and

a plurality of correlators (col. 1, lines 66 to col. 2, lines 1-2; col. 12, lines 61-67) adapted to collect RF samples of at least one of the GPS signals associated with one of the PRN code numbers and correlate the RF samples of the GPS signal against code replicas of the GPS signal based on the Doppler frequency offset, code phase offset and reference time and frequency information for that GPS signal to produce a correlation snapshot (col. 1, lines 66 thru col. 2, lines 1+; col. 12, lines 61+), wherein the transceiver 24 is further adapted to transmit (fig. 3, col. 12, lines 49 thru col. 13, lines 1+) the correlation snapshot to the interrogator 10 (fig. 1A).

Regarding claim 15, Krasner discloses the transponder of claim 14 further comprising a two-bit sampler (e.g. 1 or 0; col. 10, lines 37-40; fig. 2A) for collecting the RF samples.

Regarding claim 16, Krasner discloses the transponder of claim 14 wherein the interrogator 10 is further adapted to transmit a wake-up signal (command to initialize, col. 11, lines 61-65; initialization data, col. 6, lines 16-30) prior to transmitting the pre-positioning data and the tracking signal, and the transponder (i.e. all the circuit blocks disposed on mobile unit 20) comprises:

processing circuitry (see fig. 1A); and

a power subsystem adapted to maintain the processing circuitry in a power-off mode prior to receipt of the wake-up signal (col. 5, lines 39-51).

Allowable Subject Matter

8. Claims 4, 5, 6, 7, 9, 12, 13, 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

In claim 4, the prior art does not a wake-up signal comprising an unmodulated carrier transmitted at a higher power than the pre-positioning data and the tracking signal.

In claims 5&17, the prior art does not disclose "wherein the power subsystem comprises:

a switch connected to a receiver adapted to receive the wake up signal;

a passive standby circuit normally connected to the receiver through the switch;

a power supply control adapted to provide power to the processing circuitry and to be switched on and off by the passive standby circuit".

Claim 6 is objected for depending on claim 5.

Claim 18 is objected to for depending on claim 17.

In claims 7&19, the prior art does not disclose "wherein the passive standby circuit comprises:

three passive tuned filters, each connected to the receiver, two filters adapted to detect continuous wave tone signals and the third one adapted to measure the noise and interference in the band of interest, each further adapted to output a corresponding voltage; and

a pair of comparators adapted to combine the three output voltages, compare the result to a threshold voltage and trigger the power supply control on when the result is greater than the threshold." The objections to Claims 7 and 19 need to be removed as a requisite for allowability.

In claim 9, the prior art does not disclose "The system of claim 1 wherein the correlation snapshot comprises a set of fixed-point correlator sums and a range offset in chips."

In claim 12, the prior art does not disclose "obtaining a noncoherent sum of a plurality of integrations using a plurality of correlators spaced one chip apart; determining the approximate signal peak from the noncoherent sum; prepositioning the correlators at a code phase predicted from the signal peak"

Claim 13 is objected to for depending on claim 12.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following: 6323805, 5365450, 6487499, 6256475, and 6363123.

Communication

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronnie Mancho whose telephone number is 703-305-6318. The examiner can normally be reached on Mon-Thurs; 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Black can be reached on 703-305-8233. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Ronnie Mancho
Examiner
Art Unit 3663

March 4, 2004